

Remarks

Applicant has amended claims 44 to overcome the Examiner's rejections to particularize the structure of the inventive countermeasure cartridge and distinguish it from the several devices illustrated in the references cited by the Examiner. None of the references individually disclose a vertical countermeasure launch system for launching a cartridge (or missile) that is trained only in azimuth as by rotating the launch tube or whose trajectory may be controlled by a canard.

The Examiner rejects claims 44 through 48 and 50 through 53 under 35 U.S.C. 103 (a) as unpatentable over Becker, et al (4,662,265, Gassler, et al (4,681,014) and Grosso (5,425,514). The Examiner recites that Becker shows a launch system with a base, a launch tube comprising a base, a launch tube having a central axis, that the tube can be oriented in any desired position including substantially vertically and means for rotation of the tube about its axis so as to set the launch azimuth. Applicant rebuts that the launch tube of Becker can be oriented vertically such that the launch azimuth may be adjusted by rotating the launch tube. Becker is directed to steep firing systems such as mortars and anti-aircraft batteries. The thrust of the Becker invention is for weapons systems that are horizontally aimed, not vertically aimed, as is Applicant's.

The Examiner then asserts that Gassler teaches a missile alignment system comprising a countermeasure cartridge wherein one of the countermeasure cartridge and launch tube comprises a protrusion and another comprises a groove, at least when the countermeasure cartridge is disposed within the launch tube (i.e., means for a zero-twist rifling). The Examiner acknowledges that the purpose of the Gassler system is to eliminate rotational movement or rifling during on-loading of the missile. The Examiner is directed to the stated objective of the Gassler invention at column 3, lines 2 through 11: a system for preventing rotation of a missile *during onloading* in a launching tube, while *permitting a controlled translation of the missile* in the launching tube when subjected to external seismic shocks. The alignment device is solely functional in the loading process and is not operative in the launch process. The described device is attached to a missile support ring orienting the missile in the tube, and is not part of the launch mechanism.

The final reference, Grosso (5,425,514) is cited as teaching a controlled projectile for launch and increased maneuverability through sensing various spin characteristics, nutation frequency and precession frequency, a torquer assembly for developing a force in a lateral direction. As with many

controlled projectiles and aircraft, a canard or other airfoil surface is used to provide flight stability or control. The Examiner opines that the references are analogous art since they relate to the same field, i.e., defense systems. Applicant would rebut by asserting that is about all that the three references have in common.

Applicant's invention relates to a vertically staged missile, particularly for launching a decoy, for evasion purposes. The vertical launch missile omits many of the onboard control systems that other missiles utilize to control flight path, such as Grosso, which is a *spin stabilized projectile* guidance system, the operational features of which are unrelated to Applicant's invention.

In respect of the rejections under 35 U.S.C. 103(a), it is recognized that one cannot show non-obviousness by attacking references individually where the rejection is based on a combination of references, *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981) and *In re Merck & Co., Inc.*, the teachings in the individual references must, nevertheless, be considered when analyzing whether one of ordinary skill in the art would have considered combining such teachings and whether the hypothetical structure that would have resulted from the combined teachings would have included all of the claimed features. For these reasons, the individual references applied in the rejections are first discussed separately below to allow for a complete understanding of what the references would have suggested to one of ordinary skill in the art and to establish a basis for Applicant's position that one of ordinary skill in the art would not have considered combining the reference teachings in the manner contemplated by the Examiner.

The patent to Becker shows a launch system with a base, a launch tube comprising a base, a launch tube having a central axis, however while the barrel (launch tube) tube can be horizontally rotated in any desired position and adjustable to a steep firing angle, it cannot be set substantially vertically such that means for rotation of the tube about its axis would be able to set the launch azimuth. Applicant rebuts that the launch tube of Becker can be oriented substantially vertically such that the launch azimuth may be adjusted by rotating the launch tube. The launch mount is for a weapons system for such as howitzers, mortars and anti-aircraft weapons, which are well known to not be vertically trained. Further, such weapons exhibit rifled barrels for firing spin stabilized projectiles. The present invention is directed to a spin free missile, including the guide track and key means to ensure no rotation, i.e., a system totally unrelated as to launch and control than Becker.

The Patent to Gassler is directed to a system for preventing rotation of a missile *during onloading* in a launching tube, while *permitting a controlled translation of the missile* in the launching tube when subjected to external seismic shocks. The alignment device is solely functional in the loading process and is not operative in the launch process. The inventive device is mounted on a missile support ring for mounting the missile in such as a silo. There is no information in the disclosure to suggest whether the missile is spin stabilized, or stabilized by a variety of control jets as most large offensive missiles. The patent is devoid of any teaching regarding a non-rotational launch, or as otherwise known, a projectile which has zero-twist rifling.

Grosso is directed to a controlled projectile for launch and increased maneuverability through sensing various spin characteristics, nutation frequency and precession frequency, a torquer assembly for developing a force in a lateral direction. The invention is directed to sensing the operating parameters of a spin stabilized projectile and other than mentioning a canard, has no relevance to the present invention.

Applicant respectfully traverses the rejections under 35 U.S.C. 103(a). Applicant submits that a *prima facie* case of obviousness has not been established because Becker, Gassler and Grosso are non-analogous art, and the prior art does not provide the requisite motivation for modifying the pipe covers to suggest the modifications contemplated. See MPEP 2141.01 (a). To be analogous prior art, a reference must either be within the inventor's field of endeavor or be in an art reasonable pertinent to the particular problem to be solved by the inventor. As set forth in *In re Antle*, 170 USPQ 285 (CCPA 1971), the CCPA stated the following" The very point in issue is whether one of ordinary skill in the art would have *selected*, without the advantage of hindsight and knowledge of the applicant's disclosure, the particular references which the examiner has applied. *Id.* at 287 [Emphasis in original].

It is Applicant's contention that without the advantage of hindsight and knowledge of the disclosure, one of ordinary skill in the art would not have selected the references chosen by the Examiner. Applicant's further amendment of the claims clarify the distinction between the field of the invention and those of the references cited by the Examiner.

Accordingly, Applicant believes that the Application is now in suitable form for allowance and that the rejection of the Examiner based upon the cited references has been overcome. Reconsideration by the Examiner is respectfully requested and a Notice of Allowance solicited.

If the Examiner feels that a telephone conference with Applicant's attorney would advance the prosecution of the application, she is invited to call the undersigned at 901-537-1108.

Respectfully submitted,



H. Roy Berkenstock
Registration No. 24,719

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WYATT, TARRANT & COMBS, LLP
1715 Aaron Brenner Drive, Suite 800
Memphis, Tennessee 38120-4367

Telephone: (901) 537-1108
Facsimile: (901) 537-1010

CERTIFICATE UNDER 37 CFR 1.8(a)

I hereby certify that this sheet and its attachments are being transmitted to the U.S. Patent & Trademark Office, Fax No. 571-273-8300 via facsimile transmission on this day of September 23, 2005.



H. Roy Berkenstock
Registration No. 24,719

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